

Sub a1

1. In a display system operable to display each of a plurality of pixels at a visual output intensity relative to an output display device according to a corresponding pixel input value, a method for determining device-specific information for pixels to obtain an optimal display of fine structure monochrome images on an output display device, the

5 method comprising determining a set of device-specific pixel input values that will cause the display system to display a corresponding set of target visual output intensities relative to the output display device.

Sub B1

2. The method of claim 1, further comprising determining a device-specific sub-pixel geometry for all the pixels of the output display device where each pixel includes a

10 plurality of sub-pixels each defining a color component and a sub-pixel position associated with a given pixel, such that displaying for each of the plurality of pixels a selected visual output intensity relative to the output display device at a sub-pixel position according to a corresponding pixel input value will cause the display system to display an optimal display of fine structure monochrome images on the output display

15 device.

3. The method of claim 1, wherein determining a particular device-specific pixel input value comprises:

obtaining a target visual output intensity;

establishing a reference region in a display device, the reference region being

20 defined by a plurality of reference pixels;

selecting a pixel input value for each of the reference pixels from among a set of pixel input values for which the corresponding visual output intensities are known, the pixel input values being selected so that the average of the visual output intensities of the reference pixels is the target visual output intensity;

25 displaying the reference region with the selected pixel input values for the

Sub B, 7  
reference pixels;

displaying a control region on the display device, the control region being defined by a plurality of control pixels, each of the control pixels having a common pixel input value;

5        adjusting the common pixel input value in response to user input; and  
      associating the common pixel input value with the target visual output intensity when a user input indicates a match between the appearance of the reference region and the appearance of the control region.

10       4.       The method of claim 3, wherein the target visual output intensity is obtained from user input.

15       5.       The method of claim 3, wherein the numeric value defining the size of the set of pixel input values is obtained from user input.

      6.       The method of claim 3, wherein the numeric value defining the size of the set of pixel input values is a pre-programmed numeric value.

20       7.       The method of claim 3, wherein the pixel input value for each of the reference pixels are selected such that no perceived patterns are formed in the reference region.

      8.       The method of claim 7, wherein the perceived patterns are stripes.

      9.       The method of claim 7, wherein the perceived patterns are blocks.

      10.      The method of claim 3, further including a slider bar presented on a user interface so that based on user input, the common pixel input value may be adjusted between full

Sub B7  
on and full off, inclusive.

11. The method of claim 1, wherein the output display device is selected from a group comprising color output display devices and monochrome output display devices.

5 12. The method of claim 3, further including locating the reference region and the control region in close proximity to each other.

13. The method of claim 3, wherein the number of pixels defining the control region is substantially smaller than the number of pixels defining the reference region.

14. The method of claim 3, wherein the reference region encloses the control region.

10 15. The method of claim 3, wherein the reference region and the control region are side-by-side.

15 16. The method of claim 3, further including evaluating a control region and reference region for each color plane of the display device and adjusting the common pixel input value to achieve a match between the appearance of the reference region and the appearance of the control region for each color plane.

Sub a2  
20 17. In a display system operable to display a plurality of pixels, a method for determining device-specific information for pixels to obtain an optimal display of fine structure monochrome images on an output display device, the method comprising determining a device-specific sub-pixel geometry for all pixels of the output display device where each pixel includes a plurality of sub-pixels each defining a color component and a sub-pixel position associated with a given pixel.

Sub B1

093823 2223460

18. The method of claim 17, further comprising determining a set of device-specific pixel input values that will cause the display system to display a corresponding set of target visual output intensities relative to the output display device, such that displaying for each of the plurality of pixels a selected visual output intensity relative to the output display device at a sub-pixel position according to a corresponding pixel input value will cause the display system to display an optimal display of fine structure monochrome images on the output display device.

19. The method of claim 17, wherein determining the device-specific sub-pixel geometry, comprises:  
displaying a plurality of regions, one for each possible sub-pixel geometry, each region including a pattern that is susceptible to color fringing depending on the sub-pixel geometry for the output display device; and  
prompting a user to select a region.

20. The method of claim 19, wherein each region displayed includes two sub-regions comprising a first subregion including one or more colored lines on a colorless background and a second subregion including one or more colorless lines on a colored background.

21. The method of claim 20, wherein the first region includes one or more colored lines of a first color on a colored background of a second color and the second region includes one or more colored lines of the said second color on a colored background of said first color.

22. The method of claim 21, wherein the first region includes one or more black lines on a white background and the second region includes one or more white lines on a black

background.

23. The method of claim 19, wherein each region displayed includes a pattern comprising vertical lines.

24. The method of claim 23, wherein the vertical lines are single pixel-wide vertical lines separated from the next vertical line by a plurality of pixels.

25. The method of claim 24, wherein the single pixel-wide vertical lines are composed of illuminated sub-pixels distributed over two adjacent pixels.

26. The method of claim 19, wherein each region displayed includes a pattern comprising intersecting diagonal lines.

27. The method of claim 26, wherein the intersecting diagonal lines are single pixel-wide diagonal lines.

28. The method of claim 27, wherein the single pixel-wide diagonal lines are composed of illuminated sub-pixels distributed over two adjacent pixels.

29. The method of claim 19, wherein the user is prompted to select the displayed region that evidences the least color fringing.

30. The method of claim 19, wherein the user is prompted to select the displayed region that evidences the most color fringing.

31. The method of claim 30, wherein the device-specific sub-pixel geometry is the

complement of the sub-pixel geometry of the displayed region that evidences the most color fringing.

32. The method of claim 19, wherein only one of the displayed regions is free from color fringing.

5 33. The method of claim 32, wherein the user is prompted to select the displayed region that evidences the least color fringing.

34. The method of claim 32, wherein the user is prompted to select the displayed region that evidences the most color fringing.

10 35. The method of claim 34, wherein the device-specific sub-pixel geometry is the complement of the sub-pixel geometry of the displayed region that evidences the most color fringing.

36. The method of claim 19, wherein the number of sub-pixel geometries is dependent on the number of sub-pixels in a pixel.

15 37. The method of claim 36, wherein the number of sub-pixels is more than two and each sub-pixel defines a color component in a color space.

38. The method of claim 37, wherein the color space is the RGB color space.

39. The method of claim 37, wherein the color space is the CMYK color space.

40. The method of claim 19, wherein only one of the plurality of regions is displayed

to the user at a time.

41. The method of claim 40, wherein a different region may be displayed to the user by toggling a button on a user interface.

42. The method of claim 17, wherein the sub-pixels are oriented for display on the output display device as a sequence of consecutive vertical color bars.

43. The method of claim 17, wherein the sub-pixels are rectangular-shaped.

44. The method of claim 17, wherein the sub-pixels are square-shaped.

45. The method of claim 17, wherein the sub-pixels are round-shaped.

46. In a display system operable to display each of a plurality of pixels at a visual output intensity relative to a liquid crystal display (LCD) device according to a corresponding pixel input value, a method for determining device-specific information for pixels to obtain an optimal display of fine structure monochrome images on a liquid crystal display (LCD) device, the method comprising determining a set of device-specific pixel input values that will cause the display system to display a corresponding set of target visual output intensities relative to the liquid crystal display (LCD) device.

47. The method of claim 46, further comprising determining a device-specific sub-pixel geometry for all the pixels of the liquid crystal display (LCD) device where each pixel includes a plurality of sub-pixels each defining a color component and a sub-pixel position associated with a given pixel, such that displaying for each of the plurality of pixels a selected visual output intensity relative to the liquid crystal display (LCD) device

at a sub-pixel position according to a corresponding pixel input value will cause the display system to display an optimal display of fine structure monochrome images on the liquid crystal display (LCD) device.

48. The method of claim 46, wherein the liquid crystal display (LCD) device has a RGB color space.

49. In a display system operable to display a plurality of pixels, a method for determining device-specific information for pixels to obtain an optimal display of fine structure monochrome images on a liquid crystal display (LCD) device, the method comprising determining a device-specific sub-pixel geometry for all pixels of the liquid crystal display (LCD) device where each pixel includes a plurality of sub-pixels each defining a color component and a sub-pixel position associated with a given pixel.

50. The method of claim 49, further comprising determining a set of device-specific pixel input values that will cause the display system to display a corresponding set of target visual output intensities relative to the liquid crystal display (LCD) device, such that displaying for each of the plurality of pixels a selected visual output intensity relative to the liquid crystal display (LCD) device at a sub-pixel position according to a corresponding pixel input value will cause the display system to display an optimal display of fine structure monochrome images on the liquid crystal display (LCD) device.

51. The method of claim 49, wherein the liquid crystal display (LCD) device has a RGB color space.